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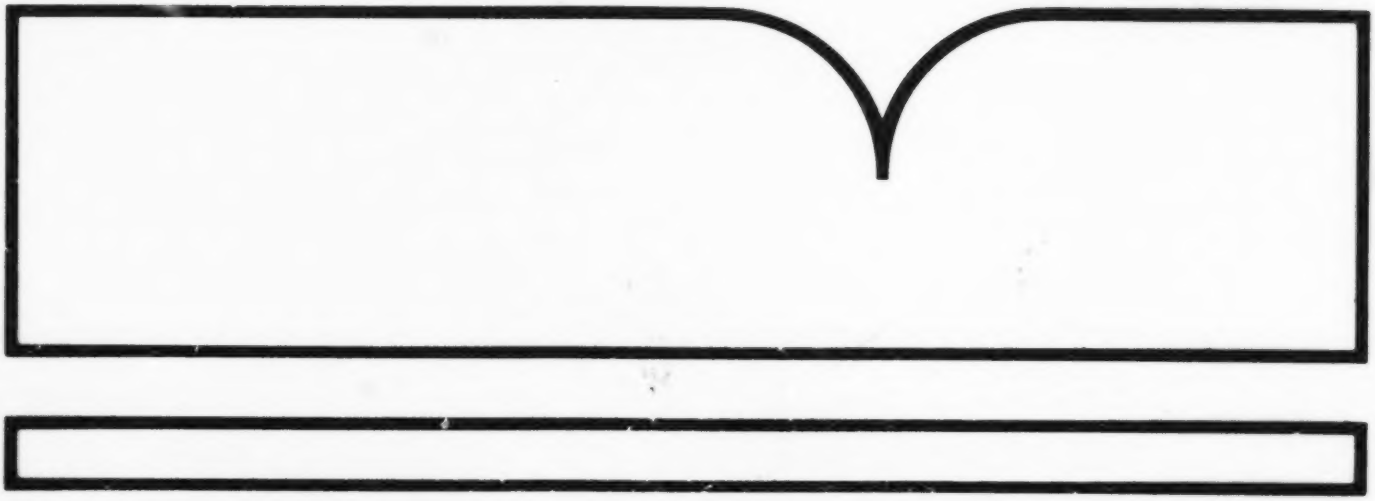

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16. ABSTRACT

Recent changes in the Federal Register proposing a revision of the National Primary Drinking Water Regulations to include volatile synthetic organic chemicals (VOCs) may have a potential future impact on drinking water quality. This article briefly discusses some of the inputs.

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TRENDS

by James M. Symons, Consulting Editor

.....In Drinking Water Quality

Two recent statements in the *Federal Register* have a potential future impact on drinking water quality in the United States. On March 4, 1982, U.S. EPA published an Advanced Notice for Proposed Rulemaking (ANPRM), proposing a revision of the National Primary Drinking Water Regulations to include among the list of contaminants, volatile synthetic organic chemicals (VOCs). Over the past several years, monitoring by U.S. EPA and others has revealed the presence of industrial solvents (VOCs) in many groundwaters around the country. Because some of these chemicals are animal carcinogens or are toxic in some other respect, U.S. EPA is considering regulating their presence in drinking water.

The ANPRM contains information on these chemicals currently available to U.S. EPA, and invites the public to comment on three basic issues: (1) "What is the significance of the contamination of drinking water by VOCs; (2) Should national standards be set for VOCs; and (3) If standards are appropriate, how should levels be established?" If, after public hearings on this ANPRM, a proposal is prepared followed by additional comments and a regulation is eventually promulgated for some of these compounds, additional treatment may have to be provided at water utilities that might exceed the Maximum Contaminant Levels (MCL) established. Some of those that utilize groundwaters would be the most likely group affected.

On March 5, 1982 the U.S. EPA published a proposed rule in the *Federal Register* that would amend the current National Interim Primary Drinking Water Regulations with respect to the control of trihalomethanes (THMs). The proposed rule specifies criteria by which U.S. EPA and those states with primary enforcement responsibility shall issue variances and compliance schedules. If this proposed rule is eventually promulgated as an amendment to the existing regulations, utilities would be required to investigate five Generally Available Treatment (GAT) methods for reducing trihalomethanes as part of any variance:

1. Use of chloramines as an alternate or supplemental disinfectant or oxidant.
2. Use of chlorine dioxide as an alternate or supplemental disinfectant or oxidant.
3. Improve existing clarification for THM precursor removal.
4. Moving the point of chlorination to reduce THM formation, and where necessary, substituting chloramine, chlorine dioxide, hydrogen peroxide or potassium permanganate for the use of chlorine as a preoxidant.
5. Use of powdered activated carbon for THM precursor or THM removal seasonally or intermittently at dosages not exceeding 10 mg/l on an annual average basis.

In addition, five other methods may have to be investigated by the system being granted a variance to determine, first, the probability that any of these methods will significantly reduce the level of THMs for that system, and second, if such probability exists, whether any of these methods are technically feasible and economically reasonable.

These five methods are:

1. Introduction of off-line water storage for THM precursor control.
2. Aeration for THM removal, where geographically and environmentally appropriate.
3. Introduction of clarification were not currently practiced.
4. Consideration of alternative sources of raw water.
5. Use of ozone as an alternate or supplemental disinfectant or oxidant.

If this proposal becomes a final regulation, this will better guide utilities as to what treatment methods they should be investigating in an effort to control trihalomethanes in their finished water.

The Safe Drinking Water

Act of 1974 calls on EPA to issue Interim Primary Drinking Water Regulations, which they did on December 24, 1975, and have amended several times since, and to issue National *Revised* Primary Drinking Water Regulations at some time in the future (emphasis added). U.S. EPA has underway a complete review of the Interim Primary Drinking Water Regulations, in preparation for this revision.

EPA is considering a "three-tiered" approach for the revisions: Part I would be those relatively few contaminants of national concern; Part II would be contaminants of regional or local interest; Part III would be non-regulatory guidance, such as Health Advisories (Suggested No Adverse Response Levels—SNARLs).

The first step of this revision probably will be the publication in the *Federal Register* of an Advanced Notice of Proposed Rulemaking, which would set out the general philosophy that U.S. EPA intends to use during the revision process. This

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would be followed in the usual way by proposed regulations and eventually, final regulations. All of the contaminants in the current regulations will not be revised at the same time. For example, if regulations become final on the control of volatile organic chemicals (VOCs), these would be the first contaminants in the revised regulations. Also, U.S. EPA is committed to revising the fluoride regulation as the first of the current regulations to be revised.

Several changes are possible during the revision process. A contaminant could be dropped, contaminants could be added, the current MCL could be either raised or lowered, monitoring frequency could be changed, application with respect to system size could be altered, regional regulations could be proposed, and so forth. The final outcome of the revision of the National Interim Primary Drinking Water Regulations may cause some water utilities to alter their treatment practices. The overall direction of the revisions will be to maximize the efficiency of application by providing the states the opportunity to exercise judgment in various aspects of application of the regulations.

During the disinfection process, the reaction of the disinfectant with other organic compounds in the water causes the formation of by-products. Currently, the only disinfection by-products regulated are the trihalomethanes. The disinfection related revision regulation will not be considered until approximately 1985. This decision may influence the future technique that water utilities use to treat water prior to delivery to their consumers.

U.S. EPA knows, however, that many other by-products are formed during disinfection. Research in the analytic, health effects, and treatment areas, by U.S. EPA and others, are attempting to determine whether or not any other disinfection by-products need to be regulated, and what treatment processes could be used to minimize all disinfection by-products. The outcome of this research over the next several years will determine whether or not U.S. EPA intends to regulate other disinfection by-products.

Efforts are currently underway by regulatory agencies at federal, state and local levels to improve drinking water quality. Several of the items mentioned above, occurring at the national level, have as their goal the future improvement of drinking water quality in the U.S. All individuals charged with the responsibility of providing high quality potable water are urged to carefully read all the ANPRM and proposed regulation documents in the *Federal Register* and submit written comments, as these opinions can help shape the future trends in drinking-water quality.